



GRAIN

AUGUST, 1944

G&FDNA to Chicago Oct. 8-9th

The annual meeting of the Grain & Feed Dealers National Association is announced for the Hotel Stevens at Chicago on October 8th and 9th. Several of the groups anticipate holding meetings on Saturday, Oct. 7th.

New High Record On Wheat

A new high record estimate on U. S. wheat production made earlier this month places the total for 1944 at 1,132,105,000 bu, a gain of 4,283,000 bu over last month's forecast. This would indicate a crop of 35% over last year's harvest and 49% over the 10 yr. average and 12% over the previous high record.

Another Plant Blows Up

The 38 yr old Pioneer Grain Elevator in Hopkins, a suburb of Minneapolis, became charred ruins earlier this month as the aftermath of an explosion and fire. The blast, quoted by newspapers as "having been touched off by spontaneous combustion in the grain," started the fire at 1:30 p. m.

Lake Grain Sets Record

Great Lakes grain shipping records were surpassed for the fourth straight month in July when the fleet hauled 7,337,000 tons of grain as compared with 4,357,000 last year and 3,774,000 in 1942.

Inorganic Dusts for Weevil

The grain weevil (*Calandra granaria*) was the insect on which most of the experiments were carried out by Professor Briscoe of Imperial College and his colleagues, and the tests showed that dust obtained by grinding furnace clinkers was an apparent cheap and plentiful source of suitable dust.

Australian trials on treatment of wheat with "inert" mineral dusts have borne out the results of laboratory tests, according to the sixteenth annual report of the Council for Scientific and Industrial Research of the Commonwealth of Australia. This report in dealing with entomological investigations says that considerable progress has been made in the study of the conditions which lead to insect infestation of wheat, and in devising methods of dealing with these pests.

With regard to the treatment with "inert" mineral dusts the report says: "The trials mentioned in a previous report, carried out at Toowoomba, Queensland, and near Sydney, have borne out the results of laboratory tests. A very real degree of protection from attacks by the two species of *Calandra* was given by magnesite, even at a concentration of 4 oz. per bushel, over a period of twelve months. (The treated bags in Queensland were invaded by *Rhizopertha*, against which the dusts did not show up so well.)

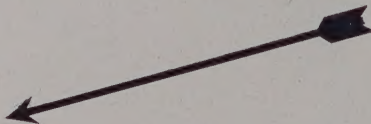
Dolomite gave good protection in the Queensland trial, but not so good in New South Wales. A trial has also been set up in Western Australia, in which the surface of bulk wheat has been treated. The dust used—a diatomaceous earth—was raked into the top 6 inches of the grain. The results have not yet been checked, but it has been observed that large numbers of weevils have worked their way to the surface and died."—The Miller, London.

Toothache is the result of diseased teeth due largely to personal neglect. Through sound nutrition, oral hygiene, and regular visits to the dentist, 75% of all toothaches could be avoided.

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How to Lick Inflation

Don't let's go off the deep end again. Don't let's spend foolishly, forgetting that the wages we're making now may not last forever, and bringing about inflation just as we did in the first World War. Let's hold down the cost of living this time! By saving our money. By buying War Bonds and building a nest egg. By buying only what we absolutely need. By obeying the price ceilings. Remember the terrible '30's!

Are you going to let your soldier lad come home to a country where a cup of coffee costs a quarter and a hamburger costs a dollar? That would be what inflation means: simply, a great and disorderly rise in the cost of living. Don't let it happen! Save your cash now. Buy War Bonds. Refuse to bid up prices. Pay off old debts.—From the Writers' War Board.

Elevating and Conveying Problems and Answers

By PAUL NAEHER, B. F. Gump Company, Chicago
Before Society of Grain Elevator Superintendents

IN past years most bucket elevators were driven from lineshaft by means of belts, ropes, or gears, and the buckets were of the slow speed type.

The modern elevators now use more of the high speed buckets and individual motor drives, so that it will be well to take these changes into consideration.

High speed buckets are designed to hold a larger volume, are placed closer together, and travel at a higher speed, all of which permits the elevator, in an equal size elevator leg, to deliver much more capacity.

Advantages Total 25%+52%+100%

AN example will be as follows: A 10"x6", Salem cup, which is a slow speed type, will hold approximately 187 cu. in., and has a working capacity of 75%, or 140.25 cu. in. An average high speed bucket will hold 234 cu. in., or a working capacity of 75%, 175 cu. in.—or approximately 25% more than the slow speed type.

The slow speed buckets would be spaced 16 in. apart, the high speed buckets 11 in. apart. Thus, figuring 1 ft. of elevator belt with buckets attached, the slow speed bucket would have a capacity of 105.19 cu. in., and the high speed bucket 160.93 cu. in.—or approximately 52% more.

The average speed of the slow speed bucket is 358 ft. per minute, the high speed bucket 452 ft. per minute. Thus, the capacity delivered is increased approximately 100%. (The speeds are figured for 36" diameter pulleys—larger pulleys, higher speeds).

Twice The Horse Power

THE horsepower to operate bucket elevators remains about the same for a given volume. Thus, for wheat weighing 60 lbs per bu, the horsepower required to elevate the grain will be bushels per hour times height of leg divided by 33,000. Thus, if the elevator is 100 ft. high, the slow speed buckets will require $100 \times 1,000 \div 33,000$ or 3.03 HP. Whereas the high speed buckets will require $100 \times 2,000 \div 33,000$ or 6.06 HP—just twice as much.

It is now necessary to add a percentage to this horsepower for friction losses in the head bearings, tension caused by the adjustable boot pulley, and losses in the driving mechanism. If roller or ball bearings are used to support the head shaft and also the driving mechanism, 15% should be added to the above horsepower. For slow speed buckets this will be .45 HP, and for the high speed buckets approximately .90 HP.

Roller Bearings Save Half Frictional Loss

IF plain babbitted bearings are used, 30% should be added, which in the case of the slow speed buckets will be .90 HP, and in the case of high speed buckets will be 1.80 HP—or twice as much. These amounts should be added to the net horsepower as listed above, so that the total horsepower to operate the elevator will be:

For slow speed buckets, using frictionless bearings, 3.48 HP; where using plain babbitted bearings, 3.93 HP;

For high speed buckets, using frictionless bearings, the total horsepower will be 6.96 HP; or, when using plain babbitted bearings, 7.86 HP.

The traction between the elevator head pulley and the elevator belt must be ample to lift the load that is

being elevated. In addition to this, elevators are subject to unequal loadings, flow from bins, chokes, backlegging, etc.; so that the maximum traction should be maintained between the head pulley and the elevator belt. This is some multiple of the net horsepower given above, and arrived at as follows:

**Ratio is 5 For Rubber Belt;
2½ For Cotton**

USING a rubber elevator belt with a cast iron head pulley, and cups loaded 75% of the maximum capacity, this proportion will be approximately 5 (which is the ratio between the down belt and the up belt). At the net horsepower given above, which is 3.03 HP for the slow speed bucket, it will result in 5×3.03 HP or 15.15 HP; and the net horsepower for the high speed bucket, 5×6.06 or 30.3 HP.

If a cotton elevator belt is used the traction will be only half this amount, or 7.57 HP for the slow speed bucket, and 15.15 HP for the high speed bucket.

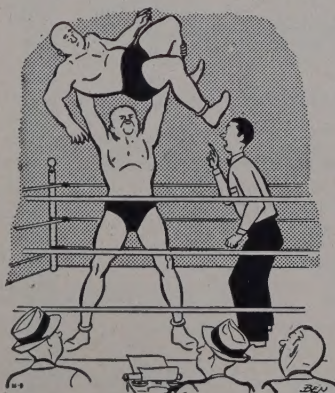
If a rubber elevator belt is used and the cast iron elevator head pulley lagged with rubber belting, the traction will be $3\frac{1}{2}$ times that where no lagging is used. For the slow speed bucket this will be $3\frac{1}{2} \times 15.15$ or 53 HP, and for the high speed bucket will be $3\frac{1}{2} \times 30.3$ HP or 106 HP.

In selecting the motor it will be necessary to use the next largest size standard motor. In the above case it will require a 5 HP motor for the slow speed bucket elevator, and a 10 HP motor for the high speed bucket elevator.

Traction Prevents Slippage

THERE will not be any danger of slippage between the cast iron head pulley and the rubber elevator belt, as you will note that the traction between the pulley and the elevator belt is ample to prevent slippage at these horsepower, ratio 5 to 1.

Next consider the drive from the motor to the elevator head shaft. This should be $2\frac{1}{2}$ times the rated horsepower of the motor, so that there will



"In the aisle, Hugo—remember, chairs can't be replaced!"

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be ample power to operate the elevator without slippage, ratio $2\frac{1}{2}$ to 1.

Many motors have a stalling torque of 3 times their rated capacity and, therefore, these motors should be protected with fuses that will blow at about 2 times their rated horsepower capacity, ratio 2 to 1.

If Choked, Blow Fuse—Save All

THE main idea is to avoid slippage between the elevator head pulley and the elevator belt, also to avoid slippage of the drive from the motor to the elevator head shaft—and still allow ample horsepower to operate the elevator.

Arrange it so that in case of a serious choke or accident to the elevator the motor will stall and blow the fuse, preventing the elevator and drive belts from slipping, thus protecting the belts from serious friction that possibly would cause a fire or, what might be worse, an explosion.

EXAMPLE: Cast iron head pulley, rubber elevator belt, with high speed buckets.

	Ratio
Motor—Rated horsepower 6.06, fused to maximum horsepower 12.12.....	$\frac{2}{1}$ to 1
Drive to head shaft—Rated horsepower 6.06, maximum horsepower 15.15.....	$2\frac{1}{2}$ to 1
Traction between head pulley and belt—Rated horsepower 6.06, traction ratio horsepower 30.30.....	5 to 1

The tension on the rubber elevator belt is usually figured at 15 to 20 lbs., 1 inch wide, 1-ply. The diameter of the head pulley should be according to the ply of the belt, so as not to damage the belt, viz., the greater the ply of the belt the greater the diameter of the pulley.

Man before judge: I want to change my name.

Judge: What is your name?

Man: Willie Smell.

Judge: I don't wonder you want to change that name. What do you want to change it to?

Man: Charlie Smell.—Melbourne Wildcat.

SEND IN YOUR ITEMS

Other readers of "GRAIN" enjoy reading about you and your activities, just as you like to know what's going on elsewhere in the industry. When something happens—or when you're interested in making something happen—drop us a line with the facts. It needn't be fancy; just tell us who, what, when and where. It's passing on and sharing what we all know and do that helps to make the industry the best dawgone one on the continent. Send 'em in, boys.

He who sidesteps a duty avoids a gain.

Another Good Reason to Join

Eighty-five per cent of the failures in industry are not members of their industry's trade associations, points out the U. S. Chamber of Commerce. "The reason is not difficult to understand," states Martin Driscoll, President of the NAPIM. "Those who haven't the vision to appreciate the value of a trade association usually have not the vision essential to success in their undertakings. . . . Try to borrow some money at your bank and see whether you are not asked: 'Are you a member in the trade association in your industry?'"

FEMININE SAFETY IN INDUSTRY

By H. W. Puetz, Safety Engineer, Milwaukee

THE number of women now employed in grain handling and processing plants is continually increasing, and from current indications their proportion is certain to expand. Here are some helpful safe practice rules worth following:

SHOES—Wear only sensible low heel full toe shoes for comfort and safety. High heel shoes and open toe shoes cause accidents.

HAIR NETS OR CAPS—Wear hair nets or caps properly by seeing that they hold back all the hair. An improperly worn hair net or cap is just as bad as none at all.

JEWELRY—Rings, bracelets, lavaliors or neck pendants are beautiful things to wear. However, not in a factory, especially when operating any machinery. They cause many accidents and serious injuries.

FINGER NAILS—Long finger nails are hazardous and cause inefficiency, spoiled work and injury.

CLOTHING—Various types of work call for different clothing and it may be necessary to wear slacks, coveralls, uniforms or dresses may be



proper. However, if you operate or are around machinery, good fitting slacks or coveralls are proper.

SLEEVES—If you operate any machinery or are around moving belts, parts, etc., your clothing should be sleeveless up to the elbows.

EYES—Wear goggles or face shields on jobs requiring them. **PROTECT YOUR EYES.**

GLOVES—Do not wear loose canvas gloves when operating machinery.

FIRST AID—Get First Aid immediately for cuts, scratches or abrasions.

LIFTING—Do not overlift—get help or if you do lift an object, bend

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or flex the knees. This will help prevent back injuries or possible rupture.

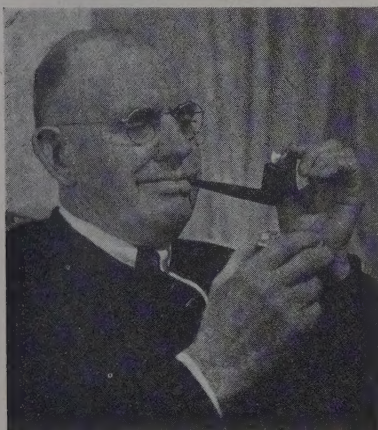
WHEN IN DOUBT—Don't take chances—when in doubt ask the foreman or forelady—that's their job to instruct and help you do the job right.

DEFECTIVE MACHINERY—Report at once any defective machinery, parts or safety guards.

The above rules are for YOUR protection—please bear them in mind.

Wanted to Pack Toothbrush

Have just received "GRAIN"—for which I want to express my heartfelt thanks—by which I notice the SOGES convention is getting under way to-



day (June 15th). Believe me the desire to be with you and to take a part in some small way has not dulled a bit during the seven years of sitting on the sidelines and watching the world go by.

Am glad to say that Mrs. Feemster and I are still keeping very well, and are doing our share of hoping and praying that this terrible war will be over soon and that our boys may be spared to return home with the other millions of boys who are giving their all that the world may remain free.

Have not kept in very close touch with the elevators here, but believe they are fairly busy. Please take that horrible engraving you have of me out of your files before the F.B.I. take me into custody, or the Amalgamated Order of Horse Thieves try to elect me president.

Have watched with a great deal of interest the growth of the SOGES and am proud to remember that one time I was one of you.—H. William Feemster, retired, Western Maryland R. R. Elevator, Baltimore, Md.

The Little Things

The little things you do without
Can help to win the war,
So try to do your own small part
To keep the things he's fighting for.
The luxuries that you forego
Will help keep down inflation,
And everything you don't buy now
Will shorten the duration!

—Sara Nolan.

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AND
RODENT
CONTROL

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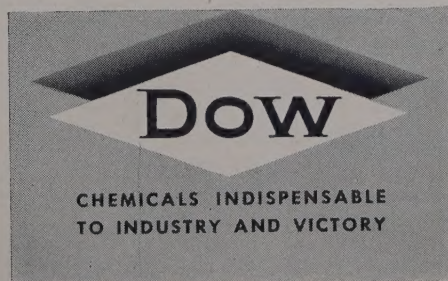


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New Grain Varieties

The Superintendent Should Know About

By ARTHUR C. LARSON, Hallet & Carey Company

Presented Before Society of Grain Elevator Superintendents by

F. Maynard Losie, Minneapolis

The new varieties of grain to be handled by the elevator superintendents of Minneapolis, Duluth, Superior, Buffalo, N. Y., and possibly Chicago will present some interesting conditions in their trek thru the various high-speed modern elevators at these various points.

There is a new wheat known as Rival, developed for our northwest farmers as a rust-resistant variety; also the new Mida wheat coming from the same parentage with the introduction of Hope wheat into its structure. These have developed a very loose-bran wheat which under high speed handling, and particularly houses that have the new unloading equipment, may give it the appearance of being scoured.

These two varieties can cause no end of trouble if we should run into a year when smut is prevalent. The brush end, as well as the loose bran, will pick up smut readily and give it a heavy smut appearance. The smut adheres also to the very loose bran coat and will carry a very distinct odor if not carefully handled.

This is going to be one of the problems that superintendents will have to be everlastingly on their guard against—a smut condition as well as this scouring problem if the grain is handled on one of the high speed legs in the unloading operations.

Easily Confused With Winter Wheat

THERE is another new wheat known as Pilot which was developed to substitute for the Ceres wheat, a rust-resistant variety as far as the farmer is concerned. It has the appearance of winter wheat and can very easily be confused where both winter and spring wheat are handled in the same house. This wheat, while it does not have the loose bran coat of Rival and Mida, also could be a smut problem, although the bran coat is considerably more compact and the scouring problem would not be of much concern.

Then there is also a rust-resistant wheat known as Regent, a substitute for the old Reward wheat. It has many of the same characteristics, has a very tightly knitted bran coat, and

a very dark red appearance and could be confused with red durum if not too familiar with those varieties. However, it is an ideal wheat so far as the terminal superintendent is concerned and handles very nicely.

New Barley Varieties, Will Confuse

THERE are several new varieties of barley that have become producing factors in the Northwest. These could find their way easily into the eastern terminal markets and might be quite confusing to a superintendent in his first experience. The first of the new varieties is known as Plush barley. It is not a malting type but could be mixed or blended with Wisconsin 38 and some barley experts would have difficulty in recognizing this new variety.

It is a smooth-awn or beard variety, has a rounder berry than Wisconsin 38, has the rough appearance on the back the same as the Wisconsin 38—but the under side differs in that it is extremely rough while Wisconsin 38 has a smooth under side. This barley is not considered a good malting type. There will be a considerable amount of it coming from North Dakota this year, some will be mixed and some will be coming as a cargo of straight Plush barley.

There is also a new substitute barley for Trebi that will have a smooth beard, has the appearance of the Manchurian types, is a very poor

malting strain but could be blended quite successfully and detection after mixing would be difficult. This particular barley does not have the long, thin berry of the Trebi, nor does it carry the blue, steely appearance that you find in the old Trebi type.

"L" Barley May Raise "L"

ANOTHER variety of barley that will be in the picture is one known as "L" barley. While it was selected from Manchurian barley, it varies slightly from the barley we know as Manchurian, as the under side of the Manchurian barley is inclined to be quite rough on the awn or beard end, whereas this "L" barley does not possess that roughness on the under side.

A new barley that has been developed and released in the State of Minnesota that will be prominent possibly next year is known as Mars. It is a very thin berry, not good for malting, but can be blended and mixed very successfully in malting barley without detection. This barley was developed for feed and distributed as feed. Later on it will be moving in carload quantities into the terminals and it is a barley that so far as the elevator superintendent is concerned will be one of his dreams for mixing or blending.

New Oats Heat Quickly

A NUMBER of new varieties of oats are definitely in the picture that are going to cause a considerable amount of trouble for the superintendents. The varieties that are going to be produced in quantity this year are Vicland, Tama, and Boone, and are oats that, if moist, are going to heat very quickly in the bin. Their bran coating is very porous and carries water with deception.

They cannot be neglected after once placed in a house because the oat itself carries considerably more oil in the germ than the older varieties we have been accustomed to handle and with the least amount of surplus moisture one will find them bin burnt in a relatively short time. Superintendents handling quantities of these



varieties, if we go into a fall with rainy conditions, had better watch their bin temperatures very carefully.

New Flax Presents Problems

SEVERAL new varieties of flax are going to be quite pronounced. Rather a sizable production of Golden flax is going to come in mixed form and this variety when not damp is very warehouseable.

There is also a new flax that may cause you some concern because the tip end of this particular variety is white. This is not damage in the flax, it is grown that way. The particular parental structure carries this white tip and that flax will be known as Victory flax.

I have tried to point out the outstanding characteristics of the various new grains that we as superintendents are to handle. Some of them are intensely interesting from a storage standpoint, and others may cause severe headaches if not carefully studied when they begin to arrive at your terminal for unloading.

Canadian Wheat Up 128%

Condition of Spring Wheat in the Prairie Provinces as of July 31 is placed at 128 by the Dominion Bureau of Statistics in its monthly report. This compared favorably with the 113 reported on June 30, and the 111 a year ago.

Harvest Is On There

Harvest is on here and though not much wheat has been threshed so far because of the rainy weather, yet what has been threshed is of very low protein content and is not yielding as heavily as had been anticipated. It still will make a better than average crop of heavy quality wheat, however.

We have had some extremely hot weather here lately and it has hurried the harvest, although it has not materially damaged the crop.—William J. Porter, Russell-Miller Mfg. Co., Grand Forks, N. Dak.

A QUICK FIRE EXTINGUISHER

With one hand in a single movement you can remove the new No. 4 Carbon Dioxide (CO₂) fire extinguisher from its rack, aim and discharge it into the fire without an interrupting motion. Is scientifically designed for ease of handling and for complete safety. No valve to turn, no hose to handle. Just aim and press the thumb-trigger for instant, accurate action.

The extinguisher, which meets the Underwriters' approval, is especially



effective against electrical, oil, grease, paint and gasoline fires. It actually smothers the flame and cools the combustibles to a below ignition temperature. It is portable, and light weight. The thumb-trigger valve makes it possible to use as much or as little of the carbon dioxide as necessary. One charge of carbon dioxide will put out a number of small fires. It is possible to have this extinguisher recharged by any nearby carbonic company at a cost of approximately \$2.

This extinguisher does not contaminate, stain or otherwise harm any materials, motors or other equipment.

It leaves no residue nor, according to its purveyors, the Seedburo Equipment Company, Chicago 6, Ill., does it conduct electricity.

This same type of extinguisher is used by the Army and Navy in ships, planes and tanks. Every plant should try out at least one of these efficient non-corrosive extinguishers. The charge never deteriorates, nor needs to be replaced because of aging. It is always ready for instant action. Available for shipment without a priority rating.

Hopes Everyone Satisfied

I hope everyone was satisfied as well as I was with the convention, even if we did not develop a new car unloader for a dollar and a half. My bet is that "Uncle Henry" Richardson will turn up with a new idea.

The manpower situation is desperate and I have rung doorbells so long now I should retire and become a Fuller brush man.

How are the entries for the current safety contest coming along? Did anyone hear any criticism or good words of encouragement regarding the contest?—Oscar W. Olsen, Globe Elevator Division, F. H. Peavey & Co., Duluth.

Canada has mobilized the mightiest of all her resources, her fighting people... Forty thousand women are in the Canadian armed forces. Over 5,000 are in Canadian Navy Services, and 16,000 are in the RCAF... On Canada's mighty munitions assembly line, one out of every four persons is a Canadian woman. They handle the technical signaling devices and secret naval codes—and, believe it or not, they plot the convoy routes... The Canadian Government has found them so proficient at Radar and Asdic that women are used as instructors. Nor is their work confined to intricate devices. They overhaul aircraft engines, operate power machines and actually operate the new instrument which determines errors in cannon fire.—Walter Winchell.

Sandy's Solution

A Scot who had ordered some meat from the butcher for his cat came rushing in later to cancel the order.

"What's the matter?" asked the butcher. "Lost your cat?"

"No," answered Sandy, "he's just caught a mouse."

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"SAVES HOURS WHEN THEY COUNT"

each load from the field, and (3) when seed in driers is ready for shelling."

There are more Steinlites in use than all other electric moisture testers combined. They are fast, accurate and easy to use. Order now for fall delivery. Send for catalog No. 144.

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INFESTATION CONTROL

In Grain Processing Plants



By **FRED A. RECH**, Chief Chemist

Arcady Farms Milling Company, Chicago

Before Society of Grain Elevator Superintendents



I AM not an entomologist. Whatever experience I have had with insect infestation in grain, granaries or mills was learned the hard way, through observation and practical trials.

When observing insect infestation in our mills and elevators I am often reminded of the following story of the drummer who stopped at a certain hotel and asked the clerk if the hotel contained any bed bugs. The clerk's answer: "There's not a single bed bug in this hotel."

A little while later the drummer came racing into the lobby in his night shirt shouting: "You told me there wasn't a single bed bug in this hotel!"

The subdued clerk said: "Yes, sir." "You're darn right there ain't," the drummer snapped, "They're all married and have large families."

Love to Raise Large Families

ALL insects are married and have large families. The females of the type of insects that infest grain and grain products lay from 200 to 1000 eggs at one time. Often 50% of these hatch. Under favorable conditions 100% may hatch.

If we are to be successful with insect eradication we must know as much as possible of their physiology and life cycles. The very best information on this comes from the U. S. Department of Entomology, but even this is often too impractical to help us in keeping our elevators and mills free of insects. Therefore now, as in the past, we ourselves must give the problem our own study. Your Society is ready-made to disseminate information of this kind, and I believe this is one of its purposes.

I am not familiar with any estimates of the loss that grain infesting insects cause, but it certainly must run into the millions of dollars.

In our mills and elevators any insect that is dark-reddish-brown in color and is from $\frac{1}{8}$ to $\frac{1}{4}$ inch long is designated as "weevil." The fact is that the true granary weevil is nowhere near the pest in mills that some other types of beetles are. Grain dam-

aged by the granary weevil and the rice weevil is only about 2% of all the insect damaged grain.

The reason for this is because of the manner in which the weevil breed. The weevil punctures the soft kernel of grain either in the field, granary or elevator bin, lays its eggs in the puncture and covers it over with a plastic substance. The laying of eggs continues until the grain is too hard to puncture.

Too Many Offsprings to Call By Name

WHEN the larvae hatch they eat their way out of the kernel, leaving a small round hole in the grain. Weevil eggs hatch in about 3 days. The grubs become full grown in about 15 to 19 days. The pupa stage lasts about 7 days. Then in 25 to 29 days we have another adult weevil to carry on the cycle. The length of the adult's life and how many eggs the female lays is not known.

Although the granary weevil is not the greatest pest in mill or elevator its damage is great even after the grain leaves the field. The adult weevil hibernates in the cracks and crannies of grain bins and when conditions are right will again propagate. It can be fairly well checked by examining incoming grain and thoroughly cleaning bins that have become infested.

The various moths that infest mills and elevators are for the most part a pest because of their webbing. But except in unused parts of mill spouting or where it is undisturbed, it cannot develop readily. Because of its physical structure it cannot exist or breed in grain or meal that is regularly moved.

Carpet Beetles

ALTHOUGH not the most numerous, one of the insect nuisances, especially in feed plant and flour mill, is the black carpet beetle. It belongs to a group of beetles that are scavengers. The larva is the only stage that is injurious as it feeds on almost anything—silk, wool and cotton fabrics, as well as on all milled products and all types of dried animal matter.

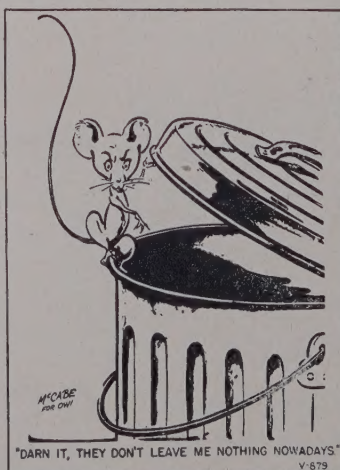
The adult is small and black, between $\frac{2}{16}$ and $\frac{3}{16}$ ths of an inch long. It may be seen in mills in the spring crawling on windows, floors, feed, flour or sacks. These beetles lay their eggs in any convenient supply of feedstuffs and these soon hatch into reddish-golden-brown worms with short hairs and a tuft of long hairs on the end of the body.

The larva of the carpet beetle develops very slowly. There is no more than one generation per year, but if conditions are unfavorable the life cycle may actually be extended to 2 or 3 years. The adults emerge in the spring or early summer and live from 2 to 4 weeks, in which time they lay about 100 eggs. Therefore efforts toward eradication might best be applied toward the larvae.

Grain Borers

THE beetles designated as grain borers are supposedly very widespread in the United States, but I have never seen nor observed them in the mill or in stored grain. But I have seen pelleted feed that was infested with the Lesser Grain Borers . . . I have never seen anything so thoroughly destroyed by insects as these pellets.

The adult Lesser Grain Borer is about $\frac{1}{8}$ th of an inch long and about $\frac{1}{32}$ nd of an inch wide. The great





I'LL
TELL THE WORLD
WE USE A
FUMIGANT!

Why make any bones about it? The elevator operator who uses a fumigant is no longer classified as a "careless housekeeper." Quite the reverse.

And the bare statement that grain has been *properly* treated with Weevil-Cide is generally accepted by the industry that it is not only free from *infestation*, but also free from *harmful fumigation effects*.

Weevil-Cide leaves no bad odor. Safe to use. Uniform killing power. Fatal to insect life. Free from fire hazard.



THE **Weevil-Cide** COMPANY
THE DEPENDABLE GRAIN FUMIGANT
1110 HICKORY STREET
KANSAS CITY, MO.



3 TO 1 CHOICE OF THE GRAIN TRADE

destruction it creates in the grain in both beetle and larval state is due to its tunneling as it feeds and its habit of pupaeing in the grain itself.

The females lay from 300 to 500 eggs each, dropping them singly or in clusters in the flour and dust, and in loose grain remaining from the feeding activities. The eggs hatch in only a few days. The larvae feed on the flour produced by the boring beetles.



They complete their growth and pupae stage within the grain, change into adult beetles and finally cut their way out of the grain. The period from egg to adult is only about one month in the summer time.

Evidently the eradication of the Grain Borer would depend on keeping grain clean and free of flour and broken kernels to prevent the nesting of eggs and, of course, as great destruction of the adult beetles as possible.

Flour Beetles

THE insect that is mostly designated as weevil by mill operators are the various flour beetles. They are a dark-reddish-brown, the same color as the granary and rice weevil, however, on close inspection the difference in body structure becomes quite apparent. The weevil has a long snout or proboscis at the end of which are the jaws. The head and thorax of the weevil cover about half its length, whereas the flour beetle's head and thorax is about one-third the length of the whole body, and it has no snout.

Eighty-five per cent of all mill infestation is caused by the three common varieties of flour beetles, namely, the Confused, the Black and the Rust Brown Flour Beetle (*Tribolium*).

Flour beetle infestation is found over practically all the temperate and tropical latitudes of the world. It is also interesting to note that remains of the flour beetle have been found in a jar of meal buried 4400 years ago (2500 B.C.) in an Egyptian burial monument. The exact specie could not be determined because the legs and antenna were missing.

Arranged For Special Nightmare

THE life cycle of flour beetles is so arranged as to prove a very special nightmare to any responsible person employed in the handling of grain.

The average life of the beetles is about 1 year, but some have been known to live as long as 3 years 9 months. The females lay an average of about 450 eggs each. The small white eggs are laid loosely in flour or other food material in which the adults are living. They are covered with a sticky secretion and conse-

quently become covered with flour or meal. They readily adhere to the sides of sacks, boxes and other containers so that fresh material placed in these containers is rapidly infested. The eggs hatch in from 5 to 12 days into small wormlike larvae, slender, cylindrical and wiry in appearance. When fully grown, they are about 3/16ths of an inch long, and are white, tinged with yellow. These larvae feed on flour or other material such as grain dust and the broken surfaces of kernels.

When full grown, they transform into small naked pupae. At first white, the pupae gradually change to yellow and then brown—and shortly afterwards transform to beetles. The period from egg to adult in summer averages about 6 weeks under favorable weather conditions, though the life cycle is greatly prolonged by cold weather, as is true of all grain pests.

These are only some of the highlights of the life cycle of various mill and elevator pests. The most understandable and precise exposé of the breeding and life habits of insects infesting stored grain that I know of is to be found in the USDA Bulletin number 1260 entitled, "Stored Grain Pests." Every mill and elevator operator should acquaint himself with the habits of insects infesting his mill or elevator. It is only when fortified with this knowledge that he can intelligently apply means of eradication.

Eradication

WHEN speaking of eradication of stored grain pests I can only tell you of some practical experience of my own. By far the greatest source of infestation is the dust and accumulation of fine grain and flour found in mills and elevators because the beetles that have become the worst pests of stored grain lay their eggs in these accumulations.

Therefore the first step in insect eradication would be the removal of all accumulations of grain debris that

offer a place for insects to lay their eggs.

In all the time that I have spent in mills and elevators and in whatever studies I have made of insect infestation, I have always been astounded at the lack of infestation in such products and by-products of grain that have been put through a process that would destroy the insect's eggs. The lack of infestation in this type of material is evident even when it has been exposed to sources of recontamination.

During World War I the corn mill I was connected with packed fine corn grits in 2-pound packages. This was sold as a wheat extender.

The first few cars of this material shipped were soon reported to contain beetle infestation. We were positive that it contained no larvae or adult beetle when packed, consequently infestation could only have come through the egg.



We then sterilized these corn cones by running them through a dryer just before packaging. This evidently destroyed the beetle eggs for we had no more complaints and packages we held for test showed no contamination. After the war's end we had many thousands of packages of this corn meal returned to the mill, and none of it showed contamination. [In dryer 2½ to 3 minutes. Temperature at outlet 175° F.]

Beetle eggs can also be destroyed when present in second hand sacks. If the sacks are heated to 140° F. Using this type of eradication, it is necessary that the proper degree of heat reaches the egg, larvae or beetle.

Eradication of Adult Most Difficult

WHAT I have said regarding the prevention of the breeding of insects should in no way be construed to mean that the eradication of the adult insect is unimportant. But I do want to point out that to prevent the laying of eggs by the adult insect, or the destruction of those eggs, is much simpler and much less costly than the eradication of the adults. It certainly is wiser to prevent the adult beetle from depositing a few hundred eggs than killing her after she has laid them.

Ordinary grinding or milling operations will destroy adult beetles but not the eggs—and the greatest source of infestation in grain or milled products is the egg. Adult beetles and their larvae are best destroyed by contact with poisonous gases and vapors.

The application of poisonous vapors and gases as well as mechanical devices for the eradication of adult beetles and their larvae is too large a subject to be discussed except to

KID SALVAGE



say that the successful use of any fumigant depends on its possibilities of penetration, the possibilities of keeping it confined in proper concentration long enough to accomplish a kill, and of course it must not injure material and machinery. Then cost of application must also be considered.

These conditions as well as the value of the fumigant itself can best be learned from bulletins on the subject and also from the different reputable manufacturers of these advertised products.

Fumigation Results Depend On User

THE intelligent use of the correct exterminant depends on the mill or elevator operator himself. Every mill or elevator presents a different problem. There is no perfect fumigant in existence and the operator must get the best possible results out of whatever fumigant he must select for his particular plant.

It is quite probable that research now going on will evolve some very notable fumigants and insecticides. Whether or not they will be applicable as mill and elevator insecticides (and especially if they attack the egg) will have to be seen.

It is my belief that we have a right to be a little pessimistic about insect control in mills and elevators because after all the study and effort that has been expended the damage caused seems to be increasing steadily.

But I also believe that if only a portion of the study and effort put into the eradication of adult beetle and larvae were expended in preventing the breeding of these insects, the infestations in our mills and elevators and eventually in our food and feeds would be immeasurably improved.

To sum up: To prevent breeding of beetles we must first know their life habits. This can be learned from the entomologists.



Then we must regulate our operations and housekeeping in such a way that flour beetles, etc., have no place to breed. This is not nearly as difficult as eradicating the adult insects. In most cases it merely means cleaning up grain dust and dirt.

Finally, again, what more ready made avenue for the distribution of information on insect eradication could exist than the Society of Elevator Superintendents?

Let us always remember, as the traveling salesman discovered, that all grain pests have large families and that the best method of their eradication is to prevent their breeding.

THE NEW EMPLOYEE

WITH the accelerated turnover existent in many branches of the industry today, one's approach to the newcomer is obviously important. Whether it be in war or in peace, good personal relations, this author believes, add considerable to the successful operation of any plant. Here is his greeting:

To the Newcomer

WELCOME, new employees! We're glad to have you as part of our working family and as active members in the partnership between the armed forces and industry.

You see, it's more than just a job you're assuming . . . you're undertaking a responsibility . . . the responsibility of seeing that our boys on the battlefields have the necessary food supplies to achieve Victory—and at the earliest possible moment.

Here are a few tips we believe will help you carry out that responsibility in your new position:

1. Don't be afraid to ask questions about your work. Your country, as well as your company, want you to be aware of the war-value of your job and to take pride in your work.

2. Your immediate supervisor is your foreman. Remember he is your friend and as anxious for you to make good as you are. He will train you, show you how to do things and co-operate in every way possible to help you. We pride ourselves on having a fine group of foremen and feel certain if you cooperate with them you will be happy and successful on your new job.

3. Adopt a friendly attitude toward your co-workers . . . try to remember their names insofar as possible . . . and use them. You want to be happy in your new surroundings, and an interested and cheerful attitude is sure to make a good impression.



4. Establish a production goal for yourself each day, but don't be satisfied with it . . . keep trying to surpass it. The war won't wait, and that product you're helping to make is badly needed—today!—Gilbert P. Lane, Arcady Farms Milling Co., Chicago.

Dempsey to Top Post

Caryl Dempsey, Vice President of Liquid Carbonic Corp., Chicago, and sponsor of the company's fumigant "Proxate" a number of years ago, will take over the reins of the Central Scientific Co., Chicago, on September 16th as president. His many friends will wish him well.

The story is told that Winston Churchill recently hailed a cab in West End and told the cabbie to drive him to BBC, where he was scheduled to make a speech to the world.

"Sorry, sir," said the driver, "ye'll 'ave to get yourself another cab. I can't go that far."

Mr. Churchill was somewhat surprised and asked the cabbie why his field of operation was so limited.

"It hain't hordinarily, sir," apologized the driver, "but ye see, sir, Mr. Churchill is broadcasting in an hour and I want to get 'ome to 'ear him."

Churchill was so well pleased he pulled out a pound note and handed it to the driver, who took one quick look at it and said, "Hop in, sir, T'hell with Mr. Churchill."

Free Men

By Lynn Forrest

Do not grieve for those who die,
They die in Freedom's name.
On earth, at sea, or in the sky
They never die in vain.

Do not grieve for those who die
On some far field alone.
They give their lives to right a lie!
God takes them for his own.

Do not grieve for those who die
Upon the angry seas;
With Freedom as their battle-cry
They die as free men—these.

Do not grieve for those who die
Like proud eagles in the sky,
Not for glory, gold, or greed
But the Free Man's deathless creed.

HIGH CAPACITY GRAIN CLEANING EQUIPMENT for TERMINAL ELEVATORS!



NEW PRIORITY-RATED
EQUIPMENT AVAILABLE
FOR ESSENTIAL NEEDS

Hart-Carter normally offers a complete line of special, heavy-duty cleaners for terminal elevators. Included are the 2564 Carter Disc-Cylinder Separator, combining discs and cylinders; and the all-cylinder 45 Hart Uni-flow Grain Separator. These machines offer a profitable answer to whatever cleaning, grading, separating or processing jobs you may be called on to handle.

HART-CARTER COMPANY

670 Nineteenth Ave. N.E.

Minneapolis, Minn.



Just like a ...DEN

Concrete, like teeth, **MUST** be inspected and attended to regularly! Cavities **MUST** be prepared, **cleaned** with only a technician's skill, **rebuilt** with an expert eye toward strength and, finally, **filled** with a truly lasting protective material; . . . bridge-work must be properly fitted and whenever necessary — **and the sooner the better and the cheaper it will be**

Nature is constantly **tearing down** and so both concrete and teeth must be restored as **quickly** as possible. Nature knows how — for once deterioration has started it increases rapidly and restoration costs jump **and** may even reach the point where either is beyond reclaiming.

Did you ever stop to think just why you go to a dentist to have your teeth fixed? . . . "Sure" you go to an expert and has the necessary tools, **equipment** and **experience** with which to do a **first-class** job. Don't stop to realize what would happen if you did **not** go to an **expert** to have your concrete repaired.

We have had nearly **thirty years'** **experience** exclusively in the restoration and care of concrete and are busily engaged in this specialized work the year 'round. By having the proper tools and

of experience we are enabled to give you the **best** results at **minimum** expense. If you entrust your problem to us you will get **satisfactory results** and the most for your money.

Protect your property investment as you would your teeth from further decay — **the best way!**

Our work is **NOT** cheap, — but it is lasting. The reason is the skilled man-hours involved and the **quantity and quality** of our materials is **greater** and **costlier** and **more satisfactory**. The **best** is **the cheapest** in the long run!

Do it NOW — it's NOT TOO LATE

No obligation for an estimate

Call in

B. J. MANY CO.

213 STATE ST., DETROIT

DENTIST!

be painstakingly
permanent strength
put in wherever

and as **well** as science
up — and eventually

say, "because he's
... But did you ever

our skilled mechanics
equipment and a wealth
job and at the least
can be assured of

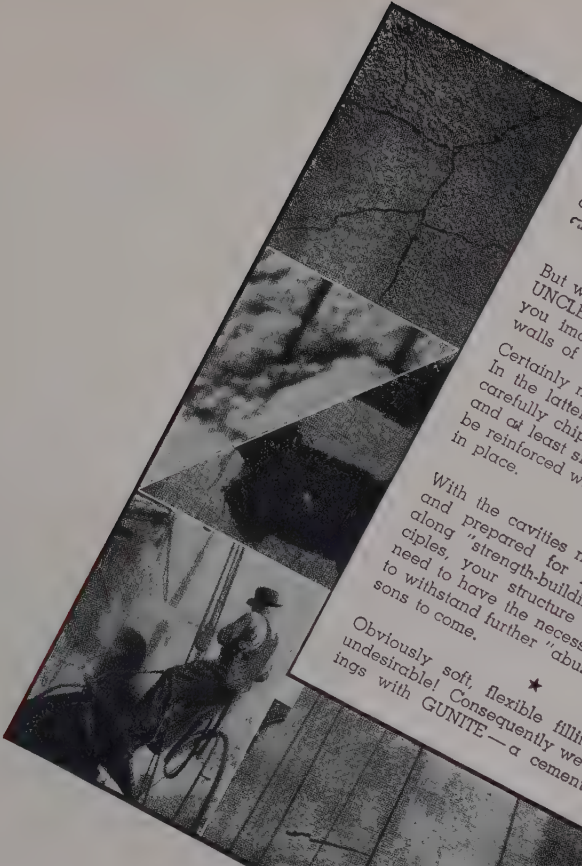
your Dentist protect

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Just

COMPANY, INC.

BALTIMORE (MD.) LIFE BUILDING



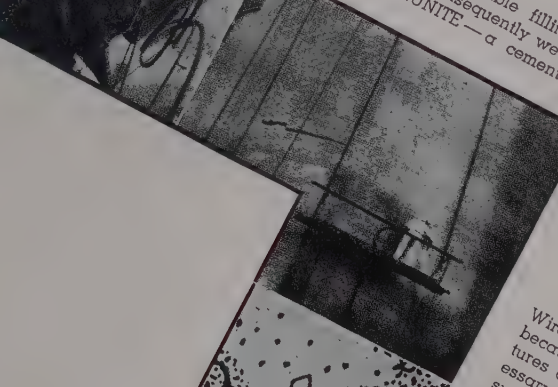
It's the "pressure cracks" caused by loading and unloading, and by temperature changes, that cause ALL your difficulties,—after, of course, the big "gaps" are sealed.

★
But would you want your dentist to fill the UNCLEAVED cavities in your teeth? Or do you imagine that would protect the thin walls of your molars?

Certainly not—in either teeth or concrete! In the latter, all the rotted areas must be carefully chipped away to a two-inch depth and at least six or more inches wide; must be reinforced with wire mesh anchor-bolts in place.

★
With the cavities now properly "cleaned" and prepared for filling and rebuilding along "strength-building" engineering principles, your structure or your teeth now need to have the necessary rigidity added to withstand further "abuse" for many seasons to come.

★
Obviously soft, flexible fillings are most undesirable! Consequently we fill all openings with GUNITE—a cement and sand



mortar grout—**s-h-o-t** on under tremendous pressure, and thoroughly reinforcing, so that the structural strength is not only completely re-established, but materially increased.

★
Wire brushing has been found inadequate because in preparing to "water-seal" structures against further deterioration it is necessary to cut away and lightly "pit" the surface to remove all dirt and provide for an excellent bond. Sandblasting and/or waterblasting alone accomplishes this result.

★
If there were no further movements your tanks would now be water-tight, but uneven loading and unloading, and temperature changes develop new and continuously opening cracks. It is therefore definitely necessary to provide a thick flexible film over the entire concrete surface to compensate for these movements.

★
In-Fil-Tro-Flex is just such a coating. It is a thick, pliable material which also is s-h-o-t on with especially developed equipment, and built up to a proper protective thickness by applying four—(4)—coats, requiring 6½ gallons per 100 square feet, thus forming a protective outer "skin", with a flexible under body. Could anything be more effective? Why not phone or write for an estimate? A post-card will do.

30 N. LA SALLE ST.
CHICAGO, ILLINOIS

Using Barley as a Carbohydrate

Source in Place of Other Ingredients;

Results of Studies in Hog Rations

By DR. E. W. CRAMPTON

Associate Professor of Animal Husbandry, Macdonald College, Quebec

Before Society of Grain Elevator Superintendents

BARLEY to the elevatorman may be the seed of a plant together with foreign material which, on the one hand, he may be asked to buy along with the barley, or which, on the other hand, he may be hoping to sell with the barley.

Barley to the pig, however, is quite different material. To the pig, barley is a mixture of proteins, carbohydrates, fats, minerals, vitamins, enzymes and water. These nutrients, packed in certain non-digestible material, constitute a part of the operating essentials for our pig "factory."

One of the first things which the pig must do is to break open the "barley parcel" and to sort out (digest) the usable material and discard the residue. Feeds differ—to a pig—largely because of differences in the amounts and kinds of the nutrients and the difficulty in "unpacking" them.

Before going further, it may be well to point out briefly the role which each of these groups of nutrients plays in the nutrition of the pig. Protein is required for the growth and the maintenance of the soft tissues of the body exclusive of fat. No other food nutrient will replace protein for this purpose. Furthermore, the kind of protein is specific, so that we speak of "quality of protein" in connection with adequate diets.

Fats as Energy Sources

THE fats, while chiefly used as sources of energy, are in the case of pigs semi-specific as to kind. Fats of vegetable origin are frequently oils at room temperature. When large quantities of such fats are fed to the pig, the mechanism which normally converts feed fat to typical pig fat appears to partially break down.

As a consequence, body fats typical of the dietary fats may be deposited. If these dietary fats were oily (i.e., of low melting points) then the pig body fat will also be soft and oily. Soft pork is not desirable and soft carcasses are penalized on the market.

Minerals are specific as to kind and

amount in something the same way that proteins are. The total mineral intake must be adequate to supply the materials for skeleton growth. In addition, the specific minerals concerned must be present in certain proportions.

It must be understood that in addition to furnishing the building material for bones, many of the mineral elements are concerned in the regulatory processes, such as rate and amplitude of heart beat, direction and ease of fluid movement between tissues, and so on.

The vitamins are also specific in the sense that there are minimum dietary levels of each of the known vitamins, and further in the sense that the vitamins are not interchangeable as to function.

Enzymes are chemical substances which aid in the "unpacking" of the food materials and in the many chemical processes involved in their ultimate utilization. We are accustomed

to think of digestive enzymes which are supplied by the body itself, but in addition, foods themselves contain enzymes which become active as soon as proper conditions of moisture and temperature are provided.

Carbohydrates Economical

THE carbohydrates, which for practical purposes are the starches and sugars of the food, are usually the most economical sources of energy. They are the fuel materials of the body. In general, the carbohydrates are not specific as to kind. Thus barley starch, corn starch, potato starch or wheat starch appear to be interchangeable in the diet.

This gives us a clue as to the possibility of substitution of barley for corn or for wheat in the ration. Their carbohydrate fractions are their major ingredients. Feeds of this class are commonly referred to as basal feeds because they constitute the largest part or form the basis of the diet.

Barley, a basal feed, is often compared to corn, oats or wheat. Experiments have indicated that these basal feeds have similar deficiencies in the protein, mineral and vitamin components. This similarity is one of the keys to their relative feeding values. It is presumably indicated by the feedingstuffs analysis supplied by the chemists.

Chemist's Analysis No Clue To Digestibility

THE chemist's analysis of a feed, however, does not indicate the extent to which the various fractions may be utilized by the animal. This is done in part by digestibility studies which permit a description of a feed in terms of digestible nutrients. Unfortunately, neither of these analyses is fool-proof as an index of actual feeding value as determined in feeding trials.

For example, it appears from the feeder's analysis that barley and oats are of equal value, since for pigs they contain equal amounts of total digestible nutrients. Also corn would on this analysis be rated above barley from the standpoint of its nutrient value. As will be shown later, these three feeds do not rank in this order when used as the entire basal fraction of the hog ration.



"BUT I JUST HAVE TO READ A COUPLE MORE, DAD, THEN WE'LL HAVE ANOTHER 100 POUNDS FOR THE WASTE PAPER DRIVE!"

Just how barley or any basal feed is used in a hog ration may be illustrated by the composition of a typical "semi-purified" rat diet. Such a diet might consist of: casein, to supply the kind and amount of protein, 18%; Crisco, a vegetable shortening, to supply the needed fats, 4%; yeast, partly to supply the vitamins of the B complex, 8%; mineral mixture, 4%; agar agar, for its effect on the physical nature of the diet, 4%; cod liver oil, to supply certain fat soluble vitamins, 1%, and finally starch, as the chief source of energy in the ration, 63%. Except for the starch, all the components of this diet are specified as to kind and amount. The starch, however, represents a non-specific source of energy.

In preparing a hog ration, we provide the "specific" requirements in the form of a mixed protein-mineral-vitamin supplement. The amounts and proportions of the constituents of such a supplement are adjusted with due consideration for the amounts and quality of proteins, fats, vitamins and minerals in the basal feed.

The balance of the diet then is largely nonspecific, and may be barley, corn, oats, wheat or any other similar feed supplying chiefly the starch nutrient. In general, then, basal feeds under such conditions would be expected to be interchangeable on the basis of their relative digestible carbohydrate contents.

We have already discussed certain of the characteristics of pure barley. In the case of Canadian barley, a further complication is introduced in the fact that barley which is handled through the grain trade is defined as to purity under official statutory grades set up by the Canadian government. Tables 1 and 2 give the essential description of feed grades of Canadian barley.

It will be noted that barley, depending on its official grading, may be a mixture of barley and wild oats and in the case of the lowest grades, may constitute but 80% of the material. There is no evidence at present which would justify an assumption that the feeding value for hogs of wild oats is equal to that of barley; and accordingly the feeding value of Canadian barley may be expected to depend on the grade of barley involved.

TABLE 3
Percentage Composition of U. S. Barley (Winton)

	Protein	Fat	N.-free extract	Fiber	Ash
Minimum	8.3	0.4	70.5	3.9	2.3
Maximum	19.9	2.5	82.1	9.0	3.6
Average	13.4	1.9	76.1	5.6	3.0

The published results of feeding trials are not unanimous as to the relative values of barley and corn for

hogs. There are doubtless many reasons for this disagreement, though three factors are probably involved.

First may be mentioned the rather high variability in composition of different samples of pure barley. For American barley this is shown in Table 3. For Canadian barley the difference in weight per 1,000 kernels of certain grades of feed barley is indicative of this variation (Table 4). When reports of feeding trials are re-

viewed it is all too often discovered that no adequate description of the feeds used has been made, and hence this question of variability in samples is lost sight of.

TABLE 4
Weight per bushel and per 1,000 Kernels of Canadian Feed Barley

Grade (prior to 1939)	Weight per bushel, lbs.	Weight per 1,000 kernels, grams
No. 3 Canadian Western ..	46	32.5
No. 4 Canadian Western ..	44	29.8
No. 5 Canadian Western ..	42	26.8
No. 6 Canadian Western ..	38	23.1

Lightness Decreases Value

WHERE this question has been specifically investigated, it has been shown that lightweight barleys are of lower feeding value than those of standard weights. For example, the South Dakota Experimental Station reported trials the data of which showed that for each pound increase in weight per bushel of barley, an average daily increase in gain of pigs of .052 lb. may be expected.

Furthermore, for every increase of 1 lb. weight per bushel of the barley, a decrease of 18 lbs. of feed required for 100 lbs. of gain in the pigs was realized. On the basis the use of barley weighing 40 lbs. bu. instead of 45 lbs. bu. would result in a decrease of $\frac{1}{4}$ lb. per day in the gains of the pigs if the diets were fed on the same level of intake.

The 40 lb. barley ration would also require some 90 lbs. more feed to produce 100 lbs. of gain than would the ration containing the 45 lb. barley. Expressed in another way, $\frac{1}{4}$ lb. per day decrease in the rate of gain of the pigs on an average 120-day feeding period means one month longer to get pigs to market on the lightweight barley.

A second possible reason for lack of unanimity of opinion concerning the relative value of barley for hogs doubtless lies in the difference in the criteria of evaluation used. For example, the difference in type of hog carcass demanded in different parts of the country, and particularly as between the United States and Canada, is marked. Carcass excellence demanded for bacon production is exacting. The carcass score used in the Canadian Advanced Registry Policy for Swine represents a workable mea-

ARE YOU SACRIFICING?

A steadily rising wave of optimism based on the careless belief that the war is already in the bag will bring about the cruel and unnecessary deaths of thousands of Americans in uniform on the battlefield.

This in substance is the warning of Secretary of the Navy Forrestal addressed to you personally.

Any relaxation by the home front now that Americans are invading enemy territory will be tragic. No matter how many War Bonds you have already bought, you cannot do enough to back up the invasion. Invasion is the deadliest, the costliest of military tactics. We are still at the outer edges of the Hitler and Hirohito fortresses. The Fifth War Loan is a forthright test of your ability to come through when your boys need you most.

TABLE 1
Statutory Grades of Eastern Canadian Barley (Feed Grades)

Grade Name:—	Maximum limits of foreign material, %				
	Minimum wt. per bu. lbs.	Seeds	Wild Oats	Other Grains	Total not to exceed
No. 4 Canadian Eastern	44	3	12	6	6
No. 5 Canadian Eastern	40	3	12	12	12
No. 6 Canadian Eastern	35	3	20	20	20
Sample Canadian Eastern .....	..	..	..	..	..

TABLE 2
Statutory Grades of Western Canada Barley (Feed Grades)

Grade Name:—Old Grades	Maximum limits of foreign material, %				
	Minimum wt. per bu. lbs.	Seeds	Wild Oats	Other Grains	Total not to exceed
No. 3 Canadian Western	47	1 1/2	6	6	6
No. 4 Canadian Western	46	3	10	10	10
No. 5 Canadian Western	42	3	18	18	18
No. 6 Canadian Western .....	..	25	25	25	25
New Grades (see note)					
No. 1 Feed	46	2	4	4	4
No. 2 Feed	43	3	10	10	10
No. 3 Feed .....	..	3	20	20	20

Note: The new grades shall be practically free of material removable through a sieve with $\frac{4}{32}$ / $\frac{64}$ inch round perforations.

sure of carcass excellence for Canadian bacon carcasses.

Canadian Bacon Has To Be Good

THE requirements for perfect score in certain of the items taken into account in this scoring may be of interest. If we take carcasses which fall into the so-called Class A-1 weight of 145 to 155 lbs. cold weight, we find that the length as measured from the first rib to aitch bone, must fall between 30 and 32.5 inches. Similarly, back fat must not exceed 1.9 inches, nor fall below 1 inch; nor can there be more than .7 inch difference between the maximum and the minimum fat depth anywhere along the back.

Again the surface area of the cross section of the eye of lean of the pork chop, cut at the last long rib, must not be less than 5.5 square inches. It is evident that these are rigid requirements for perfection and any factors of diet which affect this excellence will, of course, become a part of the evaluation of the foods of that diet. Tests in which no account of carcass excellence is taken may easily, therefore, give feeds different ratings from those in which carcass quality is one of the criteria of evaluation.

In the third place, the barleys used in various tests, especially in the case of Canadian tests, may have been pure barley or varying mixtures of barley and wild oats. Once barley (Canadian) of a given grade has been ground, it may be sold as barley meal with no indication of the grade of the grain from which it was made. This factor in itself has served to introduce differences in feeding tests and hence in the evaluation of the feeds of the ration.

Really Scientific Comparisons

BECAUSE of the importance of barley in Canadian agriculture, and because the information available concerning its value for bacon type

TABLE 5. RELATIVE FEEDING VALUE OF BARLEY FOR HOGS. SUMMARY OF LIVE HOG DATA

Items—	No. 3 C.W. barley	Oats	Corn	Barley Oats	Corn	No. 1 No. 2 No. 3	barley	barley	barley	Corn	Barley Oats
Number of hogs	25	25	25	25	25	25	25	25	25	25	25
Initial weight (lbs) ..	43	43	43	44	43	42	40	42	42	41	41
Days to reach market weight	106	129	113	116	114	109	108	114	127	114	114
Total feed required (lbs)	598	631	626	618	624	562	566	582	530	572	572
Shipping weight (lbs) ..	205	202	208	205	206	208	206	208	202	202	206
Average daily gain (lbs)	1.54	1.24	1.47	1.40	1.43	1.54	1.54	1.47	1.30	1.46	1.46
Daily gain adjusted to average feed intake (lbs)	1.46	1.35	1.44	1.41	1.42	1.50	1.49	1.46	1.39	1.46	1.46

hogs has not been satisfactory, a co-operative feeding project was organized under the auspices of the National Barley Committee (Canadian). The grain-producing organizations of western Canada, the Canadian Department of Agriculture, the packers, the Ontario Agricultural College and Macdonald College (McGill University) were involved in this undertaking. Five replicate feeding tests were carried out for two successive years.

Pigs were fed at four different stations of eastern Canada. The rations for all of these tests were prepared at one central point, from which they were distributed to the feeding stations ready mixed, thus insuring a uniformity of ration at each station. The feeding trials were conducted from one outline which was drawn up by a subcommittee appointed from the National Barley Committee for this work.

The pigs used, all of Yorkshire breeding, were placed on test at 70 days of age. They were fed to the limit of their appetites and were marketed individually at weights be-

tween 200 and 210 lbs. They were slaughtered individually, and the complete record of carcass weights and measurements was obtained. Data relative to the feeding trials and to the slaughter records were assembled at Macdonald College for statistical analysis and interpretation. The essential data from these tests are given in tables 5 and 6.

In all tests and for all lots of hogs the same protein-mineral-vitamin supplement was used. From the start of the feeding tests until the pigs weighed 100 lbs., this mixed supplement constituted 15% of the ration. From that time until market weight, the supplement was reduced to 10% of the diet. The balance of the rations for the respective lots consisted of the feed or feeds shown in the columns of tables 5 and 6.

The No. 3 Canadian western barley was a sample obtained under the official grades in force prior to the revision of 1939. The oats were No. 3 Canada western. The corn corresponded to No. 2 yellow corn. The barley and oats mixtures were made by mixing equal parts of No. 3 C. W.

TABLE 6. RELATIVE FEEDING VALUE OF BARLEY FOR HOGS. SUMMARY OF CARCASS DATA

Items—	No. 3 C.W. barley	Oats	Corn	Barley Oats	Corn	No. 1 No. 2 No. 3	barley	barley	barley	Corn	Barley Oats
Carcass score	75	71	68	74	73	80	80	75	63	73	73
Carcass length (inches)	30.3	30.5	30.2	30.3	30.3	30.6	30.6	30.6	29.9	30.6	30.6
Depth of shoulder fat (inches)	1.9	1.7	2.1	1.8	1.9	1.8	1.9	1.9	2.1	1.8	1.8
Area of eye of lean (sq. in.)	5.9	5.6	5.4	5.8	5.4	5.4	5.5	5.7	4.5	5.7	5.7
% lean in bacon rasher	44	48	39	46	40	41	41	44	31	45	45

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barley and No. 3 C. W. oats in the case of lot 4, and No. 1 feed barley and No. 3 C. W. oats in the case of lot 10. The corn and oats mixture of lot 5 was also equal parts of these two feeds.

The barley used in lots 6, 7 and 8, noted as No. 1, No. 2 and No. 3 barley, were "synthetic" samples made up by using pure barley diluted with the tolerance of wild oats and large weed seeds permitted for these grades under the 1939 statutory grade standards.

Feeding Time Lessened

THE first thing of importance in table 5 is the difference in feeding period required to produce a 200-lb. pig with these different rations. It will be noted that the oat ration required about three weeks longer feeding as compared to the best barley rations (lots 1, 6 and 7). Mixtures of barley and oats, corn and oats or of the No. 3 barley (which was barley plus 17% wild oats) required an extra week of feeding.

The corn in lot 3 (1937 tests) also required a week longer feeding than did the high grade barley ration (lot 1). In the 1938 tests some difficulty was experienced with the corn ration. The longer feeding period is a reflection of the difficulty in getting the pigs to eat as much feed per day as was consumed readily in the other lots.

This same information is shown in the average daily gains, since the pigs were marketed at approximately identical weights. Gains of 1.24 lbs. per day on the oat ration would be to some quite acceptable, but as compared to those obtained on the barley or corn rations, they are too slow. In connection with the production of soft pork, this is a factor of importance, for it has recently been shown that rapid fattening tends to the production of hard fat, while slow fattening yields soft carcasses.

When account is taken of the difference in feed required to produce the gains observed, it is noted that the efficiency of the rations is not markedly different. The best barley rations are still, however, slightly in the lead in this respect, with the oat ration as the least efficient of all.

Turning to table 6, which gives the pertinent carcass data, we note the low scores obtained on the corn rations. This penalty of corn, however, has evidently not been because of any tendency of this feed to shorten the carcass. Depth of shoulder fat has in both lots been the cause of a penalty.

In comparing these and other figures of tables 5 and 6, it will be remembered that lots 1 to 5 inclusive were fed in 1937 and the balance of the project completed in 1938. Those figures within one year may be compared directly, but those involving the two years must be compared cautiously.

Disproves Long Accepted Theory

CORN has had a tendency in both years to reduce the actual size of the loin muscle. This has been sufficient to cause further deductions from the perfect carcass score. The explanation of this tendency is not given in these data, but it seems possible that the corn ration has tended to curtail the cycle of lean tissue growth at an earlier age than is the case with the barley rations. This has resulted in a carcass of a smaller per cent lean in the bacon rasher than is the case of the other rations.

It has commonly been reported that corn tends to produce a soft carcass. Information concerning the tendency

of these feeds to produce a softening of carcass fat was obtained and a summary of the findings is presented in table 7. Routine carcass grading for fat firmness in Canadian packing plants is largely a matter of a thumb pressure test. Grades of firmness are expressed as: Very Soft, Soft, Slightly Soft, Fairly Firm, Firm, and Very Firm. By giving these grades numerical values from 1 to 6, it was possible to treat the question of firmness statistically.

Grade 5 (Firm) appears to be the average of these 250 carcasses. The corn and oats carcasses show a grade value of 4.6 to 4.8 and correspond to a grade of Firm —. The barley rations have produced carcasses just

TABLE 7. FIRMNESS OF BACK FAT OF CARCASSES

Feed—	Average firmness index	Class of fat by thumb test	Iodine number
No. 3 Canadian western barley.....	5.3	Firm +	57
No. 3 Canadian western oats.....	4.8	Firm —	61
Yellow corn	4.7	Firm —	62
Barley + oats	5.0	Firm	57
Corn + oats	5.2	Firm +	59
Barley + 3% wild oats.....	5.5	Firm +	..
Barley + 7% wild oats	5.4	Firm +	..
Barley + 17% wild oats	5.2	Firm +	..
Yellow corn	4.6	Firm —	..
Barley + oats	5.0	Firm	..
Average	5.1		59



IF YOU ABSENT YESTERDAY

*Then Thank You So Much!
You earned no War Bonds.*

above average hardness of Firm +. It would seem, then, that oats and corn have about equal tendencies to produce softening of the carcass, but that neither of these feeds is likely to do sufficient damage to cause any penalty in this respect, when pigs are fed at rates of gain obtained in these tests.

Barley Wins On All Counts

THE general conclusions which seem justified from this series of feeding tests are as follows:

1. Barley conforming in quality to that of Canadian statutory grade of "No. 1 feed" is an excellent feed for hogs intended for bacon production.

It is probably superior to corn or oats for this purpose.

2. No. 2 feed barley is approximately equivalent to the No. 1 grade.

3. The addition of 17% wild oats reduces the efficiency of pure barley rations as measured by rate of gain of pigs, but does not result in carcasses inferior to those produced on high grade barley rations.

4. Corn, as compared to barley when used as the entire basal feed of the fattening hog ration, may be expected to produce inferior carcasses from the standpoint of their value for bacon production. This damage is largely one of an absolute as well as a percentage decrease in the lean of the bacon rasher.

5. These tests further amply demonstrate that when the deficiencies of protein, minerals and vitamins are satisfactorily met by suitable supplements, barley may constitute the entire basal fraction of the diet for market pigs from the time they are weaned until they reach a market weight of 200 lbs. It may be questioned whether corn may be as freely used in the hog ration if the ultimate aim is the production of a high grade bacon carcass.

Suggest Aluminum Buckets

I received a proposal that aluminum be used for elevator buckets and certain other equipment used in grain handling and processing plants. Light weight and the non-sparking qualities of aluminum are two of the advantages claimed for its use.

The question in my mind is whether sufficient strength and durability can be incorporated in an aluminum bucket to stand some of the rather rough usage to which such equipment is subjected in some houses.

I wonder whether any members of the Superintendents Society have given any thought to this subject, or know of any cases where installations have been made for tests or observation? The proposal seems to me to have sufficient merit to warrant further consideration.—Hylton R. Brown, Senior Engineer, Bureau of Mines, U. S. Dept. of Interior, College Park, Maryland.

Ray Mons Dies

Raymond C. Mons, long a member of the Chicago Chapter of the Society of Grain Elevator Superintendents, died earlier this month quite unexpectedly. For the past 31 years he was associated with the Benjamin Electric Mfg. Co.

In collaboration with Henry Cox and other Superintendents of the area, Mr. Mons led his company into developing an acceptable Class 2 Group G Bin inspection lamp—of which there were many placed in service before the war, and doubtless will be many more put to good use when peace again returns. The development and approval process took several years before perfection was achieved, during which time Mr. Mons worked incessantly in the interests of the industry.

"Very Important," He says

GRAIN is a very important monthly magazine in the hands of every grain handling and processing plant manager and superintendent, every safety inspector, insurance engineer, et al. Herewith enclosed is two dollars for two years' subscription.—H. W. Puetz, Safety Engineer, American Motorists Insurance Co., Milwaukee, Wis.

Which IS CAUSING YOUR CURRENT PEST PROBLEM

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Attention of

Accident Facts Released

THE annual accident report released by the National Safety Council reveals that 97,500 were killed by accidents in 1943, 10,100,000 were injured, and 380,000,000 man-days were lost. The accidental death toll increased 2% over 1942 figures. Approximately 350,000 accidental injuries resulted in permanent disability. Accident costs totalled nearly \$4,900,000,000, including wage loss, medical expense, overhead costs of insurance, property damage in motor vehicle accidents and fires.

Deaths from motor vehicle accidents numbered 23,400, a 17% drop from 1942. Injuries totalled 800,000. Costs amounted to \$1,250,000,000, including \$550,000,000 property damage. Public non-motor-vehicle accident deaths of civilians totalled 17,000, a 6% rise from 1942. The injury total was 2,100,000. Costs amounted to \$400,000,000.

Deaths of civilians in occupational accidents totalled 18,000, a 3% drop. Injuries numbered 1,850,000. Direct costs were \$1,100,000,000 and indirect costs \$1,300,000,000—a total of \$2,400,000,000. In the home there were 32,500 civilian accident fatalities,

monia 55, tuberculosis 52. Accidents take fifth place with women, the order remaining otherwise.

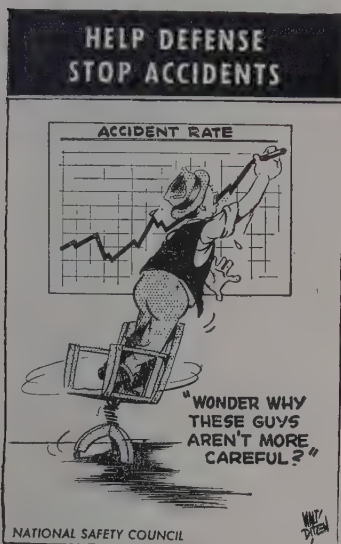
Industry's Frequency Rate Bad

THE food industry shows up poorly in frequency rate with 21.70, compared with the average of 14.52. Many expectedly more hazardous professions have better records. The food industry's severity rate is just a hair better than average, however, with a 1.16 against the average of 1.20.

Sources of injuries by parts of the

body show that the eyes account for 4% of the disabling injuries and 5% of the compensation; head (except eyes) 7% and 13%; arms 9% and 11%; trunk 20% and 20%; hands 8% and 5%; fingers 22% and 14%; legs 13% and 14%; feet 8% and 4%; toes 5% and 2%, and general, 4% and 12%.

Falls were the most costly of all compensated injuries, accounting for one-fifth of all cases. One-fourth of all compensated injuries occurred in handling objects—the most frequent source. This is the way the causes and the compensation percentages line up: handling objects cause 24% of the occupational accidents and cost



a 7% increase. Injuries numbered 4,850,000. Costs were \$600,000,000.

Fatal falls topped the list of causes, accounting for 27,400 deaths. Motor vehicle deaths numbered 23,400, burns took 10,350, drowning 7,150, railroad 5,200, poison gas 2,250, firearms 2,200, poisons (except gas) 2,000, and all other causes resulted in 21,000 deaths. Charts show the principal types of fatal accidents by age groups, motor vehicles markedly predominating in all from 5 to 64 years.

The ratio of accidents to disease in men workers is shown by the following comparisons: Heart disease 349, cancer 117, accidents 103, cerebral hemorrhage 89, nephritis 78, pneu-

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This patented Dust Collector is the key to the uniformly successful operation of DAY DUST CONTROL Systems. Its advantages include low resistance, high separating efficiency, compact space-saving design, easy installation.

The Importance of DUST CONTROL

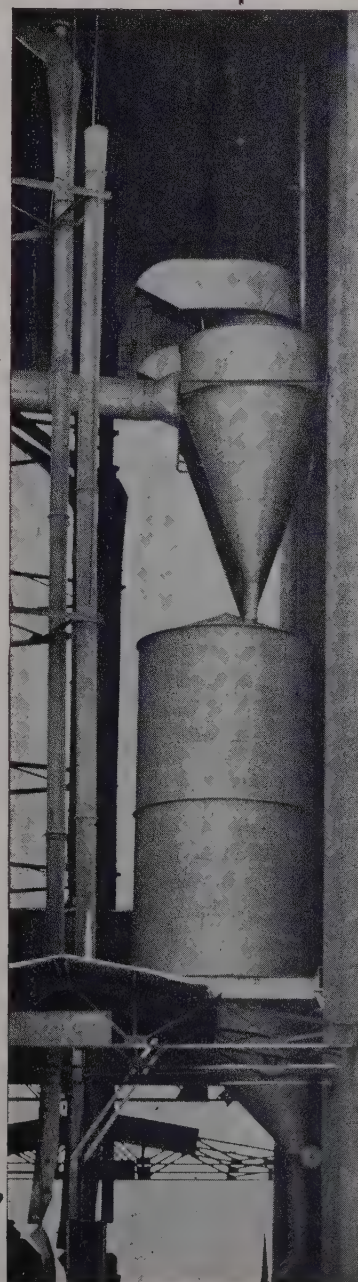
has been emphasized by serious dust explosions that have occurred recently in the grain and milling industry. Compared with the damage done by these explosions, the cost of a dust control installation is very small indeed.

Important information for you in our booklet "DAY DUST CONTROL." Write for a copy.

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One of many types of DAY installations at a grain elevator. The dust is discharged directly from the dust tank into box car below.



15% of the compensation; falls 18% and 23%; machinery 12% and 15%; vehicles 9% and 14%; falling objects 10% and 12%; hand tools 8% and 4%; stepping on or striking against 8% and 3%, and other sources accounted for 11% of the trouble and 14% of the compensation.

A three-year comparison of the frequency and severity rates reveals the following:

	Frequency	Severity
Cereal	10.80	0.84
Corn refining ...	14.31	1.51
Milling	23.32	1.47
Grain Terminals.	24.35	4.25

Compared with these latter figures covering three years, the records of those entered in the Superintendents Society's annual safety contest show a frequency rate of 26.19 in '43 and 25.71 in '42; a severity rate of 1.59 in '43 and 5.01 in '42. A substantial margin of safety has been earned by those in the SOGES contest over those not entered:

Where the Bond Dollars Go

Bond dollars are used as follows:

19c for aircraft

12c for ordnance and signal equipment

10c for Navy and Army vessels

4c for merchant ships

11c for miscellaneous munitions

14c for war construction

25c for non-munitions war items (pay, subsistence, travel, export commodities, etc.)

5c non-war uses

The Civil War cost \$4,006,000,000.

The first World War cost \$33,455,000,000.

Claims Its Interesting

Took time out on my vacation to peruse the pages of "GRAIN". Being up to the minute makes it really interesting.—Robert G. Hunt, Tacoma, Wash.

St. Lawrence Seaway "Economically Unsound"

Believing that the St. Lawrence seaway and hydroelectric power project is "economically unsound," the Chamber of Commerce of the State of New York, in a resolution adopted recently, opposes the construction of the development for the following reasons:

1. The cost of the project, estimated at \$421,000,000 to over \$1,000,000,000, will be far in excess of any economic benefits which will accrue to the nation as a whole; and its operation will be a subsidized facility for the minor benefit, if any, of a small group of our citizens, and a material injury to many other groups.

2. The economics of industry and transportation show that it is not practical to build expensive machinery which can only be used a part of the year; ice closes the waterway five months during the winter season, so that the investment would be idle and non-productive 42 per cent of the time for transportation.

3. Only short waterways connecting large bodies of water like the Sault Ste. Marie, Panama, and Suez Canals can profitably be utilized to any great extent by ocean-going vessels.

4. If all United States grain exports went through the improved St. Lawrence channel, the savings to the farmer, assuming such savings did not go to foreign purchasers, would

THE U. S. Coast Guard recently submitted a report listing the reasons why many of the fires which have occurred in the various parts of the country during the second year of the war, have gotten beyond control and with the resultant severe loss.

Many of these reasons seem so elementary that it would not appear necessary to emphasize them, but the fact that they have actually occurred within the past year leads us to believe that they deserve publication in the hope that those who read may act and see that none of these reasons are the cause for fires in their plants getting beyond control.

(a) Watchman did not know how to call fire department.

(b) Watchman tried to extinguish it. He failed, then called the fire department by telephone instead of by the public alarm system.

(c) Fire got beyond control of watchman. Did not know the city fire alarm box was within 50 ft. of the plant and used the telephone instead.

(d) Watchman handicapped in the handling of fire extinguisher due to crippled arm. Fire soon out of control. Did not know how to send in an alarm. Finally done by passerby.

(e) Watchman saw smoke in bin at noon. Alarm received by city department at 7:50 p.m. Explosions followed.

(f) Alarm delayed while watchman telephoned two company officials.

(g) Fire on railroad property. Alarm delayed while crews tried to remove unaffected rolling stock from fire area.

(h) Alarm delayed an hour after employees saw smoke. Thought it was coming from a furnace.

(i) Fire fought unsuccessfully by employees. Finally city department was called and companies were blocked by train.

(j) Employees smelled smoke for an hour or more. When alarm was finally turned in, fire had gone through roof.

(k) Workmen fought fire. It got into concealed spaces. Then none knew how to call the fire department.

(l) Workmen fought blaze. It was soon out of control, and this in spite of the fact that a city alarm box was 25 ft. from plant. They did not know how to use it.



be only a small part of the sum necessary to pay interest and amortization of the waterway.

5. Studies of the traffic possible on an improved St. Lawrence waterway disclose that a maximum saving of 4 cents per bushel on grain rates (which has been used as a leading argument by the proponents) could only be obtained by an 11 cent subsidy by payment of cost by the taxpayers.

6. The existing waterpower and steam plants in the section of the United States which could be economically reached from the St. Lawrence territory by transmission lines, are considered adequate to meet the normal industrial development for many years.

7. While the bills in Congress are labeled to be "in the interest of national defense," it is safe to say the St. Lawrence project could not be completed in time to be of use in World War II.

It is apparent that through consideration of the above information that one of the outstanding causes of fires getting out of control was because incomplete instructions were given to company watchmen and guards in regard to the location and use of fire alarm boxes, telephones and first aid fire fighting equipment. We are wondering if the watchmen in all other grain elevators are better trained and better instructed than are the watchmen listed herein.—C. E. Harbin, Manager, Underwriters' Grain Ass'n, Chicago.

Enjoys Reading Contents

I have enjoyed reading "GRAIN" for quite some time.—Lee Brittain, Blair Elevator Corp., Atchison, Kan.

Hurry Up with Car Unloader

I admit that I have been and still am deeply interested in the car unloading topic which is occupying the minds of so many elevator supers and others similarly minded. I have for a long time given much thought to the subject, but every time the answer comes out the same, namely a more simplified car dumper or the grain car itself.

Now I fully appreciate and am in sympathy with each and every thought from anybody and everybody who wants and knows we must have something more time-saving than the present power shovel unloading. I believe that anything less than something altogether different will not be the machine or device needed.

Admitting that every little bit helps, we face the fact that we are in need of a lot of help to overcome the cost problem. It is not so much the increase of wages being paid, but the working of the job has been seriously slowed down. You talk to men today about unloading 4 cars an hour on each leg—or even 3—well, no one objects to paying for something provided they get something back.

Modern grain plants here have receiving legs of 14,000 to 16,000 bu capacity hourly. Unloading two cars an hour, as is being done now, certainly doesn't overtax them.—Robert G. Hunt, Tacoma, Wash.

Doesn't Sound Reasonable

The April Journal of the American Medical Association states in an article on "A Case of Silicosis Caused by Wheat Dust" that the true cause of the silicosis was silicate-bearing foreign dust mixed in the grain. [An investigation is being undertaken. In the opinion of chemists and other scientific men associated with the industry the charge is without merit.]

WHO WANTS STONES

If you know how to spend less than you get, you have the philosopher's stone.—Benjamin Franklin.

KID SALVAGE



Tip-Top Association

I am happy to say that I belong to an association that shows such a keen interest in developing any ideas that its members have to offer. My wife and I wish to thank everyone concerned for the wonderful time we had during the SOGES convention at Chicago. I met a grand bunch of fellows and am looking forward to meeting them all again.

I feel that it is time to get busy and start selling memberships in our wonderful organization. I can plainly see that if Buffalo is to get the convention in 1945 we sure will have to increase the membership considerably. Please send application blanks, rates for ads in "GRAIN," and anything else you can to help me advance the Society's interests.—John Mack, Standard Elevator & Grain Division, Buffalo.



HIRING TERMED EXPERTS TASK

Job Turnover Laid to Poor Managers

Days of the old-time "hire and fire" man are over and present day labor problems demand attention of highly trained personnel managers, according to Col. Newman Dean, advisor on occupational deferments for Minnesota selective service.

Col. Dean told members of Minneapolis chapter, Society of Grain Elevator Superintendents, that "too many so-called personnel managers now on the job are sales managers, politicians or friends of the vice president's mother-in-law."

"Such untrained men," he said, "are largely responsible for abnormal labor turnovers, job jumping and manpower shortages. General management should wake up and get the best personnel managers obtainable instead of letting out-dated 'hire and fire men' try to solve complex manpower problems."

Col. Dean said highly trained men are needed now, especially because of the generally lower quality of available manpower. He pointed out the state has been combed by selective service and out-state industries and added that "remaining employables would very likely be unemployables in normal times."

Discussing the invasion, Col. Dean warned against taking it in the light of a show and said too many persons do not know its seriousness or its effect on outcome of the war.

Cannibal (on South Sea island): "We're just captured an actor!"

Second Cannibal: "Hurray I was wanting a good ham sandwich!"

Corn Crop Fourth Largest

A drop of 51 million bu is forecast as of Aug. 1 by the USDA for a total of 2,929,117,000 bu corn—quite a contrast over the past two years. Despite the 150 million reduction under last year's harvest and the 200 million drop from the 1942 production, this year's crop will be the fourth largest since 1920.

Carloadings Still Up

From a 3 yr record high of 62,536 cars loaded with grain and grain products during the week of July 15th, the annual peak has passed; however, the movement promises to be heavier than usual for some time to come, as indicated by the following official figures:

	1944	1943	1942
July 22	59,723	58,839	46,330
July 29	57,409	58,553	43,618
Aug. 5	52,299	57,862	41,955
Aug. 12	51,184	57,398	44,684
33 wks. (+000)	1,591	1,621	1,300

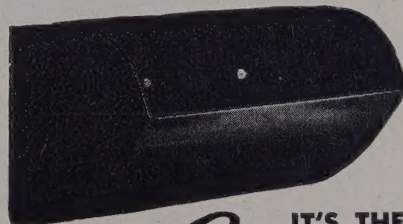
Cars of export grain unloaded at tidewater during July totaled 3,985 cars compared with 4,970 in July, 1943, a 20% decrease.

Walter Teppen Appointed

Walter Teppen, Super at the Occident Terminal Elevator in Duluth, was just appointed Vice Chairman of the Docks and Elevators Section of the Duluth Industrial Safety Conference, according to a report from Clarence Turning. Oscar Olsen and Frank "Slim" Carlson are committeemen.

Please Accept Congratulations

Please accept the writer's congratulations on putting out such a fine, healthy publication as "GRAIN." Have found many helpful items for our own publication, and the magazine is very interesting.—D. G. Hansen, Ass't Safety Director, International Milling Co., Minneapolis.



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OUR FRONT COVER

"Winnowing Rice the Primitive Way" is the caption penned on the picture appearing on this month's front cover. Having taken some time to trickle through the maze of battlefire of wartorn China, its locale is apparently lost en route. C. J. Alger of Corn Products Refining Company, Argo, Ill., thought it appropriately interesting—which we know you will, too.

Red Letter Day

An awful lot of us really appreciated the convention efforts extended in our behalf by the Chicago Supers. My wife is also very grateful to the ladies. It really was a red letter day for her. Have heard little of the other boys so take it for granted that they, too, have their hands full.—Harold Wilber, A. E. Staley Mfg. Co., Decatur, Ill.

Dermatitis Compensable?

Q.: Is Dermatitis compensable?

Ans.: That depends on state or provincial laws. There is a text available from the USDL giving abstracts on all such laws.

New Grain Man Arrives

The third boy arrived at the C. Gibson Franks home in Chicago on July 10th. His Dad is the author of a number of safety and barley stories, both gleaned from first hand contact with the subject involved. His "Snooper, The Boiler-Room Cat" cartoons have appeared regularly in "GRAIN" for a number of years. Pop is still with the Navy.

SLAP-A-JAP COCKTAIL

THE "Slap-a-Jap" cocktail is becoming a favorite drink among Government officials and thousands of newcomers to Washington. And it calls for an investment of only twenty-five cents.

You merely tell the bartender you want a "Slap-a-Jap" cocktail. The bartender then goes through a lot of motions and serves you with a glass of water and a 25-cent War Savings Stamp. After that you can order what you want.



BUT IS IT ESSENTIAL DRIVING ?

Anxious to Enter Contest

We are very anxious to have the Port Authority Grain Terminal at Gowanus Bay, Brooklyn, participate in the SOGES 1944 contest. Also please send us 50 copies of the SOGES Safety Manual for distribution to our staff.—David K. Milligan, Assistant General Superintendent.

To Halt Canadian Wheat Flow

CCC announces that imports of Canadian wheat will be halted Jan. 1. Between 40 and 50 million bu will have been purchased in the meantime to fulfill commitments already made.

June Wheat Grind Off

During June 975 mills ground 41,359,521 bu wheat compared with 41,984,215 bu ground by the same number of mills the month previous and 37,892,935 ground by 1,018 mills a year ago. Thirty-five ground 3,792,534 bu wheat for granular flour.

July Corn Grind Off

Only 8,963,461 bu corn were ground for domestic consumption by the eleven refiners during July, compared with 9,086,719 bu a month ago and 9,198,363 bu a year ago.

YOUR HELP IS NEEDED

The shortage of paper and paper products affects everyone. It must not be permitted to interfere with vital war work. For this reason, every plant and shop in the country has a stake in the success of waste paper salvage efforts. Your own self-interest is apparent if you consider the many items of paper and paper products required in your daily activities.

Ralston Changes

John Blunt, manager of Ralston-Purina's plant at Charlotte, N. C., succeeds Hugh Stallworth as operating head of the company's Nashville, Tenn., unit. C. C. Booker, formerly assistant to Mr. Blunt, will succeed him.

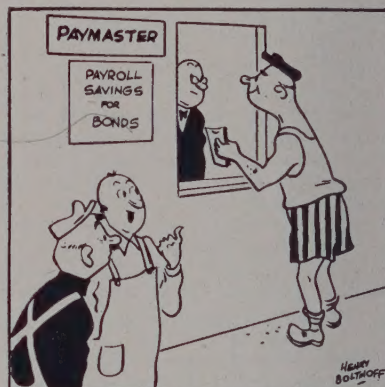
Don Walker, manager at Iowa Falls, will soon be transferred to the St. Louis Grain Buying Department, and H. N. Johnson, his assistant, will become manager.—Geo. H. Steel.

Installs Synthetic Belt

We have just completed the installation of a new synthetic rubber belt in one of our legs to replace a rubber belt which has run for 19 years, carrying well over 4,000,000 bu wheat annually. I plan to keep a record of its performance and report to those interested.—W. J. Porter.

Halac Vice Chairman

Steve Halac of The Glidden Co., President of the Chicago SOGES Chapter, was elected Vice Chairman of the Association's Safety Contest Committee at their recent convention. Oscar Olsen of Duluth is Chairman and Malcolm Noxon of Minneapolis is Secretary. The largest contest to date is anticipated this year.



"Jackson is certainly going all out on this payroll savings!"

Quaker Oats Starts Mag

Quaker Oats Company bursts forth with mighty attractive internal publication whose cover features its Akron plant elevator. Akron, incidentally, was the site of the first oatmeal mill to be established on this continent—away back in 1856.

Lewis Inks, G.E.S. at Akron, just received his service pin, according to this publication, for thirty years service. His work in the Superintendents' Society also is told.

Herb Brand, Quaker G.E.S. at Cedar Rapids is likewise given a story on his election to the presidency of the association. All the company's plants are pictured.

Canada is the only one of America's Allies which has not used Lease-Lend help... Most of her money payments to the Allies have been outright gifts because Canada is opposed to piling up war debts... The United States is Canada's best customer; and Canada is at the top of the list of our best customers... Canada is the world's largest producer of aluminum. Last year she produced more than the whole world did in 1939... Canada is the world's largest producer of nickel and is practically the only source of supply available to the United Nations... Canada is the world's largest producer of asbestos, terrifically important on aircraft carriers and battleships... She is a heavy producer of lead, zinc and mercury, and the most important discovery of tungsten ore yet found on this continent is now being developed by the Canadian Government direct... It's the backbone of battle armor.—Walter Winchell.

When the soldiers of an infantry company at Fort Devens, Mass., boast that every member of the company is buying War Savings Bonds, they are 101 per cent correct. Not satisfied with 100 per cent participation in the bond buying campaign, the doughboys chipped in and bought a \$25 bond for their mascot, a tiny black dog named "Blackout." When "Blackout's" bond comes due, the money will go to the A. S. P. C. A.

To the Users of Transportation in the Movement of Grain,
Grain Products and Allied Commodities:

From Commissioner J. M. Johnson of the Interstate Commerce Commission.

- (1) The Armed forces cannot win this war by themselves!
- (2) The first step in the battle is Railroad Transportation!
- (3) You cannot win the war by missing the first step!
- (4) Grain and Mill Products must be moved—but transportation must be economized!
- (5) You are using too much railroad transportation!
- (6) You must now take every precaution; wring out every extravagance; make every possible sacrifice!
- (7) Grain and Mill products must be transported with the least possible use of box cars, man power and motive power on the part of the railroads!

Every Man From A to Z

By Russell B. Millburn, Super, Cedar Rapids, Ia.

Here they are men, let's go:

- A dropped a box. Now he's minus a toe.
B is for Ben, a diligent toiler; he shut the wrong valve and went up with the boiler.
C stands for Carl; he got caught in a cable. He likes to work, but now he's not able.
D is Dan, he also got hurt; pulled into a clutch by the sleeve of his shirt.
E stands for Emery who thought he was tough; his machine was tougher, I guess that's enough.
F, yes that's Frank, a carefree lad; wouldn't pay attention, now he wishes he had.
G is for Glenn, queer sort of a guy; walked off the roof—no one seems to know why.
H stands for Henry, he got a bad shock; should have watched the motor instead of the clock.
I stands for Irwin who was jabbed with a spike; guess he wanted to see what our Doctor looked like.
J—that's Jerry who worked in a daze. Now he's enjoying idleness instead of a raise.
K is for Kirk who was on the wrong track; tried to lift 300 lb. with only one back.
L is for Louis, he got the wrong hold; now he has only one hand—he should have been told.
M stands for Michael, so healthy and strong; fell into a bin—he didn't last long.
N is for Neil who fell down the stair; he's now at the Doc's for needed repair.
O stands for Oscar who never did lag, but he cut his hand badly while opening a bag.
P—Pete's a careful man I most forget to mention; is at home now enjoying his pension.
Q is the question, who's next on the list, to sprain his ankle, neck, back, or wrist?
R stands for Ray. He got burned with a torch; now he's at home on the sun porch.
S is for Sid who splashed acid in his eyes. Now let this be a lesson to the rest of you guys.
T is for Tommy who always liked his beer. I wonder where he is—I know he's not here.
U stands for Umbert—that name is a shame, but he wound up one legged just the same.
V is for Vincent who was too close to the gear! Now he's doing his listening with only one ear.
W stands for Willie who couldn't hear a sound.
X marks the spot where the body was found.
Y is for you or any other man; stay out of danger if you possibly can.
Z means Zip, Zip. Let's all give heed! Eliminate these dangers. Make it your Creed!

"One Good Turn
Deserves Another"

Old Axiom.

BUT NOT

if YOU use

C.C.C.-GRAIN

and

MILL FUMIGANTS

Save Those Expensive Turns

Be Sure With "C.C.C."

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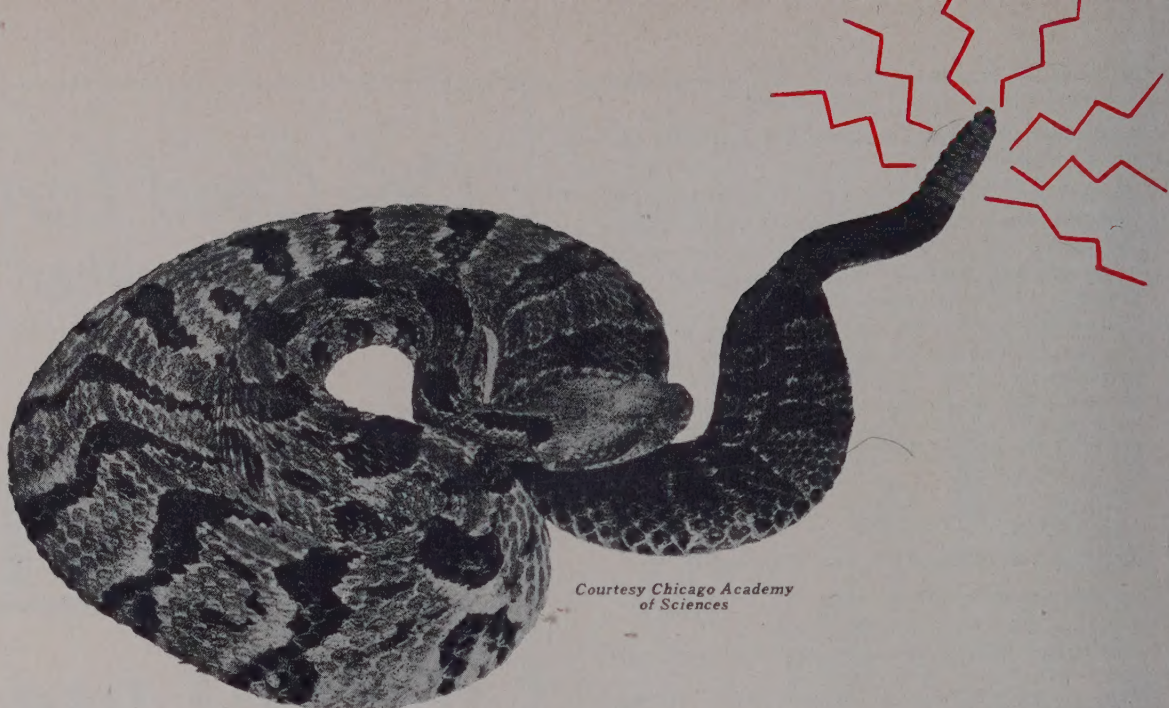
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A RATTLESNAKE WARNS BEFORE IT STRIKES

A DUST EXPLOSION **DOESN'T!**

... it l-a-s-h-e-s out, *UNHERALDED*, *UNEXPECTED!* And then, one of two things happen: (1) It expands, extends destruction with violent secondary explosions;

(2) Or the blast, which probably originates in the elevator leg, is dispersed and little or no damage results.

Robertson Safety Ventilators, equipped with safety top and operating

with gravity action, continuously vent *DANGEROUS* fine Dust from your elevator legs.

SHOULD a primary explosion develop, it is i-m-m-e-d-i-a-t-e-l-y *USH-ERED* out through the Robertson vent ... s-t-o-p-p-e-d from s-p-r-e-a-d-i-n-g!

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